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GENERAL NOTES.

Presentation of Doctor George Ellery Hale *for the Degree of Doctor of Laws, Commencement Day, University of California, May 15, 1912, by* W. W. Campbell.—"Mr. President, I pass in brief review the services of a colleague in the domain of astronomy. Bringing new methods and new life to the study of the Sun, twenty-two years ago, he invented the spectroheliograph. This instrument remains the solar student's most effective aid and is used in the leading solar observatories. He organized and was the first director of the Yerkes Observatory. When the Carnegie Institution of Washington decided to establish a solar observatory at a high altitude, our colleague was selected to plan, build, and direct it. To mention only one technical result of his investigations: He has recently proved that sun-spots are vortices in the solar atmosphere, and that each spot is the locus and center of a magnetic field. The *Astrophysical Journal,* which he founded in 1892, is the principal medium for the publication of contributions to the physics of astronomy. He was the organizer of the International Union for Co-operation in Solar Research, whose triennial meetings in different countries have been a powerful stimulus to the study of the Sun. I present the director of the Mount Wilson Solar Observatory, Doctor George Ellery Hale."

Following Dr. Campbell's presentation of Professor Hale, President Wheeler made happy and appropriate comments on Professor Hale's place in astronomy, and conferred upon him the degree of Doctor of Laws.

Adjusting the Polar Axis of An Equatorial.—In a recent number of *Popular Astronomy,* Professor Schlesinger has published an account of a simple method of adjusting the polar axis of an equatorial telescope by noting the position of a star in the field at equal hour angles east and west of the meridian and on the meridian.

I have used this method for adjusting equatorials for some five or six years, having developed it for the Crossley reflector at Mount Hamilton, which presented difficulties by the ordinary methods. It proved so simple, quick, and accurate that

I have used it for eclipse apparatus and all forms of equatorials which I have had to adjust.

With a filar micrometer or even fixed wires, it is capable of a very high degree of accuracy. C. D. Perrine.

Observatorio Nacional Argentino, Córdoba, January 31, 1912.

Appointment of Mr. Plummer *as Astronomer Royal of Ireland.*—We learn from the Edinburgh *Scotsman* of May 6, 1912, that Mr. H. C. Plummer, M. A. (Oxford), Fellow in the Lick Observatory 1907-1908, and at present assistant in the Oxford University Observatory, has been elected Andrews Professor in the University of Dublin and Royal Astronomer of Ireland. Mr. Plummer's papers on astronomical subjects have been noted for their elegance and thoroughness and reveal the possession of an unusually fine critical power. We do not doubt that Mr. Plummer will give good account of the opportunities afforded by his new position.

The Total Elipse of April 17, 1912.—As noted in the last number of this *Publication,* this eclipse was total for only a very short time, the maximum duration being only about one second. Successful observations were made by numerous European observers. It was nearly total over much of Spain, France, and Germany, and aroused great popular interest.

Professor Schwarzschild, director of the Potsdam Observatory, watched the eclipse from the Zeppelin airship *Victoria Louise,* which made an ascent from Frankfurt-on-Main. The following data are taken from the London *Times*:—

DETAILS OF THE OBSERVATIONS.

This phenomenon seems to have been favored with cloudless skies along the central line from Portugal to Belgium. In this respect it resembles that of May, 1900, but such favorable conditions are more unexpected now than then; owing to the more northerly track and the earlier date in the year the prospect of clear sky was only 4/10 at each station now, as compared with 7/10 in 1900.

POSITION OF THE CENTRAL LINE.

Never before have the almanacs of the different nations given such widely diverse results as on this occasion. This might seem surprising, seeing that the places of the Moon in all of them are derived from the tables of HANSEN with NEWCOMB's corrections. Owing, however, to the extreme narrowness of the track, and the consequent importance of an exact forecast, a new departure was made by the American almanac, which applied supplementary corrections to the Moon's longitude, latitude, and parallax based on formulæ given by NEWCOMB shortly before his death. The observations of Abbé MOREUX at Bourg-sous-la-Roche (west coast) and of the British astronomers in the forest of St. Germain demonstrated *the almost perfect accuracy of the American line.* The times of contact also agree well with their forecasts. The French Connaissance des Temps was less happy. It corrected the Moon's right ascension by $+0''.30$, but left the declination unaltered, the result being to place the track two miles too far to the southeast. Later the Bureau des Longitudes changed the $0''.30$ to $0''.40$, moving the line another mile to southeast. A party from the Paris Observatory, stationed on the latter line, noted that a sensible solar crescent remained uncovered, while on the central line the eclipse was total except for a few beads of sunlight seen through the lunar valleys. The British and German almanacs made no attempt to correct the Moon's tabular place, and their line was two miles to the northwest of the American one.

THE MOON'S DIAMETER.

For the last ten years the British and American almanacs have recognized the necessity of using a smaller diameter of the Moon for solar eclipses than for occultations of stars; for the lunar valleys permit the Sun to shine through them and effectively reduce her diameter. The German and French almanacs have not hitherto allowed for this, and have given durations of totality that were too long by five seconds. This eclipse has settled the point decisively in favor of the British eclipse value, and no doubt all the almanacs will now fall into line.

It was par excellence a "BAILY's bead" eclipse. The disappearing and reappearing crescents were broken up by saw-like teeth—the lunar peaks seen in profile and enlarged by the irradiation that increases the apparent width of the bright crescent. These lunar peaks could also be clearly seen during the partial phase, some of them indicating steep mountains rising to a height of two miles above the surrounding plain.

THE CORONA.

No one at any of the stations appears to have obtained more than a fleeting glimpse of the corona; in any case only the brighter inner corona was seen, not the faint extensions. There is a possibility that the photographs when developed may show a little more than the eye could detect, but long exposures could not be given owing to the rapid return of sunlight, so that the most that can be expected is that the bases of the principal rays may be traceable, from which the general type may be inferred. Prominences will doubtless be shown, but as they can be photographed daily with the spectroheliograph, they are no longer a subject of great attention during eclipses.

THE SHADOW BANDS.

These were very well seen at St. Germain by M. and Mme. ANTONIADI on a white sheet stretched on the ground. They appeared as irregular wavy bands, some darker than others, about six inches apart, which moved very rapidly with a wriggling motion like snakes in the direction from south-southwest to north-northeast (that is, nearly away from the Sun, and also nearly in the direction of the wind). The peculiar feature was that they moved in the direction of their own length; these directions are generally inclined at a large angle; the direction showed no rotation, such as was plainly detected at Majorca in 1905. There is little doubt that these bands are connected with atmospheric waves arising from the rapidly falling temperature, and also with the slit-like shape of the source of light, but the reasons for their capricious behavior are far from clear.

TOTALITY IN PORTUGAL.

Dr. WILLIAM LOCKYER has received the following telegram from Mr. WORTHINGTON, who observed the eclipse of the Sun in the neighborhood of Ovar, Portugal:—

"Successfully photographed windvane corona. Seen eclipse, total one second."

There are three types of corona—maximum, intermediate, and minimum. The minimum corona takes the form of a wind-vane, the streamers radiating east and west and not at the solar poles.

The eclipse, which was annular over most of the line, is now known to have been total in Portugal.

Dr. WILLIAM LOCKYER himself returned from Paris yesterday, having observed the eclipse from a station about twelve miles from Paris.